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CONTENTS

A Technique for Determining Interest 191
VIVIAN WEEDON, *Ohio State University*

Vocational Agriculture and College Achievement 198
LYMAN E. JACKSON, *Ohio State University*

Training in Mathematics Vocabulary 201
RICHARD DRESHER, *Maple Leaf School, Garfield Heights*

Editorial Comment 205

Readings 207
MAGAZINES—*New Era, School Review, Elementary School Journal, Review of Educational Research, School Executives Magazine.*
IN PAPER COVERS—*Louisiana High-School Standards, The History of the Bridgewater Normal School, The Development of Teacher Training in Florida, The New Leisure Challenges the Schools.*
BOOKS TO READ—*How We Think, Educational Psychology, Common Problems in Group Guidance, Case Conference Problems in Group Guidance, Mathematical Facts and Processes Prerequisite to the Study of the Calculus, Human Values in Music Education, The Administration of Mathematics in the Secondary Schools, Annuaire International de l'Éducation et de L'Enseignement, Molders of the American Mind, Political Geography of the British Empire, Leadership among High School Pupils, The Preparation and Work of Alabama High School Teachers.*

New Tests 216

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A Technique for Determining Interest

By VIVIAN WEEDON
Directed by R. W. Tyler

OBJECTIVE measures in education were first applied to information. More recently, exact measurements have been expanded to include tests of the ability to reason, to draw correct inferences, to apply principles, and to evaluate standards, and objective tests of character, attitudes, and judgments have been devised also.

Interest, an important educational objective in many courses, has been largely ignored. One objective in a chemistry course may be the development of an interest in chemical experimentation; an objective in a literature course may be the development of an interest in reading novels or poetry or drama. The testing of interest has not been entirely neglected, but, for the most part, the tests or the testing techniques are not sufficiently flexible for the classroom teacher to use as measuring devices for the particular set of activities in which she is interested.

There is a need for a technique by which a teacher may construct a test to determine the interest of her group in any set of activities.[1] Such a technique would make it possible for the music teacher to compare the interest of her group in Bach, Beethoven, Wagner, Liszt, or Schubert; for the physical-education teacher to determine the relative appeals of such games as soccer, hockey, handball, or volley ball; for the school principal to discover whether his pupils were more interested in reading, listening to music, playing games, or going to the movies. Such a test, of course, would in no way indicate the value of an activity. It merely would show the interest of the group in that activity.

[1] The development of this technique was undertaken at the suggestion of Edgar Dale, who wished to obtain interest data on possible substitutes for movies.

In developing the desired technique the method of paired comparisons was chosen for trial, because in the field of psychophysics this method has been found to be the most accurate, and, reasoning by analogy, it might be expected to be the most accurate for this purpose. This method was chosen, also, because it seemed the most valid measure in terms of what one does in life. One frequently chooses between two offered alternatives: one decides whether to go to the movies or to have a game of bridge, to spend an afternoon reading or playing cards. Even young children make decisions of this sort. A child may decide to play with his blocks rather than with his train; he may choose to walk rather than to ride his tricycle. Finally, this method was selected because it has been used successfully by L. L. Thurstone in other judgment tests.[2]

THE definition of interest taken was that which one says one wants to do. For the test to be valid there must, of course, be no motive for deceit. Obviously, this definition was limited. Certainly, in the present state of our social and economic order what one says one wants to do is a more valid indication of one's interest than what one actually does. If the test is to be valid, the activities in reference to which interest is to be determined must have the same meanings for each individual. It is possible that the thing which appeals to one child in going to the movies is the inevitable ice cream soda following; in a community where there are no motion-picture theaters, it might be the necessary trip to town, with possibly a restaurant meal or some incidental shopping; to another it might be the thrill of being with the "gang." While these are all possibilities, it seems reasonable to assume that there is a common core of meaning for the group. Care should be used, however, in the interpretation when comparisons between different groups are made.

In order to give this technique a trial, an experimental test was constructed. The particular activities used were chosen because it was desired, as part of another study, to compare the interests of high-school students in going to the movies with their interest in these activities. A test of the length necessary

[2] Thurstone, L. L. "The Method of Paired Comparisons for Social Values," *Journal of Abnormal and Social Psychology*, XXI (January-March, 1927), 384–400. *See also* "An Experimental Study of Nationality Preferences," *Journal of General Psychology*, I (1927), 405–25; "A Law of Comparative Judgment," *Psychological Review*, XXXIV (July, 1927), pp. 273–86; and "A Mental Unit of Measurement," *Psychological Review*, XXXIV (November, 1927), pp. 415–25.

to contain all comparisons was too long (276 comparisons) for use in many situations, so the test was broken into three forms. It was desired that there be a common element in each test, so 20 items were chosen to be included in each form. These items, which are referred to as "anchor" items, consisted of the comparison of "go to the movies" with each of twenty other activities.

Mr. Thurstone has scaled his judgment test with reference to the normal-probability curve. The computations for this method are lengthy, and the statistical concepts underlying it are difficult for the layman to understand. Since these tests were to be suitable for use by the classroom teacher, a simpler method was sought. Scaling the interests by the percentage of pupils that preferred them was tried, and took about one-third less time to compute.

The Thurstone method, however, has two theoretical advantages. First, each activity is weighted by the other to which it is preferred; that is, when "go to the movies" is preferred to "go swimming," which stands high on the list of preferences, the scale value of "go to the movies" is raised more than it is when preferred to "do gardening," which has a low scale value. In the percentage method the activities to which an activity is preferred do not influence its value. Second, each unit on the Thurstone scale is equal to every other unit. For instance, if "go to the movies" has a scale value of 2.3 and "go swimming" a scale value of 2.4, while "do gardening" has a scale value of .5, and "read a book" .6, it may be said that reading a book was preferred to doing gardening by the same amount that going swimming was preferred to going to the movies. Such a statement is not possible with the percentage scale. If the relative and absolute results are similar when the activities are scaled by the two methods, these theoretical objections will be of no importance.

THE comparison of the two methods when used with a group of 99 boys is shown in Table I. Relatively, the results are surprisingly similar, the correlation for the boys' group was .98. When used with a group of 31 girls the correlation was .94. In only four places is there any difference in arrangement in Table I. "Go to the movies" and "go on a sight-seeing trip," with scale values of 1.81 and 1.77 and ranks

of 4 and 5, respectively, are reversed on the percentage scale with ranks of 5 and 4 and percentage values of 64.3 and 67.0, respectively. Also, the ranks for "read a magazine" and "play cards" are reversed.

The absolute comparisons are not so satisfactory. Activity

TABLE I

COMPARISON OF THE ARRANGEMENT OF ACTIVITIES OF NINETY-NINE BOYS IN GRADES IX AND XII WHEN SCALED BY THE THURSTONE METHOD AND BY PERCENTAGE OF PREFERENCES METHOD

Activity	Activity Number	Rank		Scale Value	
		Thurstone Method	Percentage Method	Thurstone Method	Percentage Method
(1)	(2)	(3)	(4)	(5)	(6)
Go camping	24	1	1	2.50	83.1
Go swimming	2	2	2	2.35	77.5
Play baseball	3	3	3	2.21	74.2
Go to the movies	1	4	5	1.80	64.3
Go on a sight-seeing trip	23	5	4	1.77	67.0
Go to a picnic	9	6	6	1.63	63.6
Go hiking	5	7	7	1.62	61.3
Go fishing	4	8	8	1.61	59.2
Play tennis	11	9	9	1.35	57.9
Make things with tools	22	10	10	1.31	56.7
Listen to the radio	6	11	11	1.23	51.5
Do scientific experimenting	8	12	12	1.16	51.3
Go to a dance	13	13	13	.99	48.1
Go to see a play	21	14	14	.97	47.3
Play a musical instrument	7	15	15	.90	44.3
Read a book	19	16	16	.79	41.1
Read a magazine	10	17	18	.65	37.1
Play cards	18	18	17	.61	38.7
Do gardening	16	19	19	.41	33.8
Take part in a play	20	20	20	.30	31.1
Go to a club meeting	15	21	21	.29	30.5
Play table games	14	22	22	.22	30.2
Go to a concert	12	23	23	.08	25.2
Make a collection	17	24	24	0	24.0

16, "do gardening," has a Thurstone scale value of .41, while Activity 22, "make things with tools" has a scale value of 1.31. Thus Activity 16 is separated from Activity 22 by (1.31 — .41) or .90 of a Thurstone scale unit. Activity 3, "play baseball," has a scale value of 2.21 which is separated from Activity 22 by (2.21 — 1.31) or .90 of a Thurstone scale unit. Thus it is

possible to say that Activity 3 is preferred to Activity 22 by the same amount that Activity 22 is preferred to Activity 16. When the percentage scale values are used we see that Activities 16 and 22 are separated by 22.9 per cent (56.7 — 33.8) while Activities 22 and 3 are separated by 17.5 per cent (74.2 — 56.7). Again, Activities 15 and 20, 4 and 5, 5 and 9, differ by .01 of a Thurstone scale unit, while the differences for the same activities on the percentage scale are .6, 2.1, and 2.3, respectively. Numerous similar comparisons may be made. From these data it may be concluded that the simpler method will be equally as satisfactory as the Thurstone method for scaling the results of an interest test.

TABLE II

CORRELATION BETWEEN THE RESPONSES OF A GROUP TO THE ANCHOR ITEMS AND ITS RESPONSES TO THE SAME ITEMS TWO MONTHS LATER

City	Sex	Grade	Number	Coefficient of Correlation
(1)	(2)	(3)	(4)	(5)
Akron	Boys	XII	14	.73
Akron	Girls	XII	27	.91
Canal Winchester	Boys	IX–XII	15	.69
Canal Winchester	Girls	IX–XII	25	.92

THE reliability of the test was next considered. As the percentage of preferences method is recommended, the reliability studies are based on that method.

These tests were given in two cities, and after approximately two months they were given again. This time, however, each student took a different form than that which he had taken before. It will be recalled that the anchor items were the same for each form, so those items were answered twice. The correlation between the students' responses to an item with their responses to that same item two months later are given in Table II. The correlations are all sufficiently high to discriminate three levels of interest without serious overlapping.

More meaningful, perhaps, are the data of Table III.[3] Ex-

[3] The data of Table III are affected both by the difference in time when the tests were taken and the difference in individuals responding to specific items. The group as a whole responded to the same items that it had on the first test, each individual responded to different items.

amination of the top, the middle, and the bottom fifth shows that there is one shift only in the top fifth, and this only to the second fifth; that of the two shifts in the middle group, only one drops to the lower fifth; and of the two shifts in the lower fifth, neither one raises as high as the middle fifth. Three

TABLE III

COMPARISON OF RESULTS OBTAINED FOR THIRTY-ONE TWELFTH-GRADE GIRLS ON TESTS GIVEN IN FEBRUARY AND APRIL

ACTIVITY	ACTIVITY NUMBER	RANK		PER CENT	
		February	April	February	April
(1)	(2)	(3)	(4)	(5)	(6)
Go swimming	2	1.5	1	82.3	80.3
Go camping	24	1.5	4	82.3	73.0
Go to a picnic	9	3	2	79.4	78.9
Play tennis	11	4	3	72.3	77.8
Go on a sight-seeing trip	23	5	8	71.4	67.3
Go to a dance	13	6	5	71.0	71.8
Go hiking	5	7	6	65.9	71.0
Go to the movies	1	8	7	65.8	68.3
Go to see a play	21	9	9	55.4	58.3
Read a book	19	10	10	54.2	54.0
Take part in a play	20	11	11	53.2	53.5
Play a musical instrument	7	12	13	53.1	48.7
Listen to the radio	6	13	15	49.7	43.3
Read a magazine	10	14	16	43.5	41.1
Play cards	18	15	20.5	38.6	29.0
Play table games	14	16	20.5	38.5	29.0
Go fishing	4	17	19	37.9	34.8
Go to a concert	12	18	12	37.7	51.6
Play baseball	3	19	14	37.3	43.7
Go to a club meeting	15	20	17	37.1	40.3
Make a collection	17	21	22	28.3	25.4
Do gardening	16	22	18	20.4	36.4
Do scientific experimenting	8	23	23	15.9	14.1
Make things with tools	22	24	24	8.7	8.2

group interests, high, medium, and low, are here defined with only one serious error.

It might be noted here that the error is in playing cards, which falls from a rank of 15 to one of 20.5. Possibly cards are a more appropriate interest for the winter months than for the spring. Playing table games also falls from a rank of 16 in February to one of 20.5 in April. The interest in gardening and baseball rose: the former from a rank of 22 to 18; the latter

from a rank of 19 to one of 14. Not so easy to explain is the change of interest in concerts from a rank of 18 to one of 12.

These data would indicate that the method of testing proposed is sufficiently reliable for group diagnosis even after a period of two months. The data also indicate that some seasonal change may be expected. With an interval of only two months, this influence did not change the results seriously.

TABLE IV

THE NUMBER PREDICTED NECESSARY FOR A RELIABILITY OF .90

Grade	Form	N	r	r_{11}	Predicted N
(1)	(2)	(3)	(4)	(5)	(6)
XII—Girls	A	10			
	C	10	.80	.29	22
IX—Girls	B	42			
	C	19	.91	.28	23
IX—Boys	B	22			
	C	43	.84	.15	51
X-XII—Boys	A	32			
	B	24	.79	.12	66
IX-XII—Boys and girls	A	97			
	B	97	.85	.06	141

THE teacher may desire to use this test with a small number of pupils to determine the status of interest of the entire group. For example, the physical-education teacher may want to know the boys' interests in order to plan his curriculum. He will not want to test more than are necessary to give reliability.

To estimate the number needed for such purposes, five correlations were worked between the responses to the anchor items on two different forms. The Spearman prophecy formula was used to predict the number of cases for groups of varying degrees of homogeneity necessary to give a reliability of .90. Table IV gives the results for five groups: the first three were fairly homogeneous; the other more heterogeneous. It shows that if one wished to sample a population similar in the homogeneity of interests to the girls of Grade XII on a similar set of activities, a group of at least 22 would be necessary.

In practical use it will be impossible to tell when the groups one wishes to sample meet the similarity requirements demanded by the formula. These figures will, however, be an indication of the number to try.

[*To be continued*]

Vocational Agriculture and College Achievement

By LYMAN E. JACKSON

WHAT is the influence of vocational agriculture upon college achievement? This question arises because of the fact that some students offer four or five units of vocational agriculture for college entrance. Are these students handicapped because vocational agriculture has taken the place of certain academic subjects more commonly considered for college preparation?

In order to make an investigation of the question, the college records of men students enrolled in the College of Agriculture, Ohio State University, beginning in the Autumn Quarter of 1929 and ending with the Spring Quarter of 1931 were examined. All students presenting three or more units of vocational agriculture for college entrance were placed in one category, and all students presenting no units of high-school agriculture were put in another. From the two groups of students selected for study, pairings were made upon the bases of high-school achievement and percentile rank. At Ohio State University the high-school achievement records of entering students are evaluated under three classes: *G*, excellent; *A*, average; and *P*, poor. In pairing a student presenting three or more units of vocational agriculture with a student presenting no units of high-school agriculture, perfect agreement was secured as to high-school achievement, and the percentile ranks varied no more than three points in each case. In Table I, Group A represents the students presenting three or more units of vocational agriculture for college entrance, and Group B includes the students presenting no units of high-school agriculture for college entrance. Eighty-seven per cent of the 86 students in Group B pursued typical academic college-preparatory courses, 7 per cent had a high-school major in commercial work, and 6 per cent a major in manual arts. Of the 86 students in Group A, 83 per cent presented four or more units of vocational agriculture for college entrance.

Certain point-hours are awarded for each credit of work given a letter mark as follows: *A*, 4; *B*, 3; *C*, 2; *D*, 1; *E*, 0. Point-hour ratios are determined by dividing the number of

point-hours received by the number of credits of work taken. In Table I, the mean achievement for the composite of work done during the first quarter in college and during three quarters of college work was computed in terms of point-hour ratios. The mean achievement in courses was calculated in terms of point-hours received.

An inspection of the table reveals the fact that students in Group A, presenting three or more units of vocational agri-

TABLE I

A COMPARISON OF PAIRED GROUPS OF STUDENTS IN COLLEGE ACHIEVEMENT IN THE COLLEGE OF AGRICULTURE, OHIO STATE UNIVERSITY

	GROUP A (VOCATIONAL AGRICULTURE)		GROUP B (NO UNITS OF HIGH-SCHOOL AGRICULTURE)		PROBABLE ERROR OF DIFFERENCE OF MEANS
	Number of Students	Mean	Number of Students	Mean	
(1)	(2)	(3)	(4)	(5)	(6)
During first quarter of college work—point-hour ratio	86	2.55	86	2.25	6.0
During three quarters of college work—point-hour ratio	67	2.46	67	2.28	3.3
In college English (3 credits)—point-hours received	66	6.68	66	6.05	2.7
In college English (6 credits)—point-hours received	54	14.11	54	13.00	2.6
In college general chemistry (10 credits)—point-hours received	66	24.01	66	22.34	2.9
In college zoölogy (10 credits)—point-hours received	45	24.22	45	22.77	1.7
In college botany (10 credits)—point-hours received	58	24.31	58	23.44	.9
In college mathematics (5 credits)—point-hours received	27	12.20	27	9.40	3.9

culture for college entrance, are significantly higher in their achievement during the first quarter of college work than students in Group B. The trend of the mean achievement during three quarters of college work is the same although the difference is not entirely significant.

From these facts it may be concluded that students who have studied vocational agriculture in high school may be expected to do as well if not better in their work in the College of Agriculture than students most of whom pursue the typical college-preparatory type of high-school course. Such a result

might be expected if more agricultural subject-matter courses were included in the first year's work in the College of Agriculture. A somewhat different interpretation of the results may be recognized, however, when an inspection of the curriculum of the College of Agriculture reveals the fact that most of the courses during the first year are in the basic sciences and English. A further inspection of Table I reveals the fact that Group A students achieved a higher mean number of point-hours than Group B students in English, chemistry, zoölogy, botany, and mathematics.

The technique for determining the probable error of differences between means where correlated was used in this study. A quotient of 4 given in Column 6 indicates a statistically significant difference between the mean achievements. The trend is consistently in favor of Group-A students, but the differences are not significantly different from a statistical standpoint. It is significant to note that the courses just mentioned are taken by students from other colleges in the University as well as the College of Agriculture. It probably may be concluded that Group-A students could be expected to do as well as Group-B students in any type of college work in which achievement in such courses is an index of success. Although this investigation presents no objective evidence to support the claim, it might be stated that students interested in taking vocational agriculture in high school probably may be expected to pursue college courses in fields of applied science, and therefore the results of this investigation apply in indicating that in such college work there is no indication that high-school vocational agriculture is a hindrance to successful college achievement.

While the study of vocational agriculture in high school may not be a hindrance to college achievement, it may cause difficulty so far as college entrance is concerned. College administrators may well investigate the facts before deciding that certain high-school courses be discriminated against for college entrance. Just what type of work constitutes a satisfactory college-preparatory course is a question. There are too many variables to make tenable a static classification of what should and should not be offered for college preparation.

From the standpoint of the high-school counselor it may be stated that if a student desiring to enter college has a use for the type of training afforded by vocational agriculture there

is no particular indication that the college achievement of the individual will be hindered thereby.

Many studies have been made in other states corroborating the results of this investigation. The various investigations are well summarized in a bulletin of the Virginia Polytechnic Institute entitled *The College Performance of High-School Graduates of Vocational Agriculture as Compared with Others*, prepared by Edmund C. Magill, professor of agricultural education. A quotation from this bulletin pertaining to an investigation made in Virginia is as follows:

> The answer for Virginia and the three Virginia institutions (University of Virginia, College of William and Mary, Virginia Polytechnic Institute) is, vocational agriculture is as acceptable for college preparation as many of the unquestioned traditional courses as they are taught at the present time in rural, large town, and private schools of this state; or even more acceptable.

In conclusion, in an investigation involving the records of 716 students matriculating at Stanford University it was concluded that from three to five vocational units did not decrease a student's chance for successful college scholarship.[1]

[Vol. XIII, No. 8]

Training in Mathematics Vocabulary

By RICHARD DRESHER

MATHEMATICS, like other school subjects, has a technical vocabulary. The words may be divided into three groups: the words common to all subjects; the words common to several subjects, as science and mathematics; then the more technical words common to mathematics alone. The words used in all subjects the majority or all of the pupils will know. The words used in several subjects will not be so widely known, while the words found in one subject will be known still less generally. The purpose of this study was to determine the effects of extensive and specific vocabulary training in junior high-school mathematics. The pupil will presumably have a larger mathematics vocabulary. Will this also lead him better to understand and solve problems?

[1] Holenbaugh, L., and Proctor, W. M., "Relation of Subjects Taken in High School to Success in College," *Journal of Educational Research*, XV (February, 1927), pp. 87–92.

Four tests were used in this study,[1] three of the standard type and one an informal new-type objective test. The arithmetic vocabulary test, devised by L. C. Pressey and M. K. Elam, was composed of 117 items selected by three criteria, essential according to teachers' judgments, social usefulness, and frequency. The geometry test was developed by S. L. Pressey, L. C. Pressey, and R. C. Zook. It was composed of 77 terms; they were selected by frequency, importance for teaching, technical value, social value, and usefulness in other subjects. The

TABLE I

Results of Vocabulary Training on Knowledge Vocabulary

Section	Medians, Initial Test		Gain		Net Gain
	Control	Experimental	Control	Experimental	Experimental
(1)	(2)	(3)	(4)	(5)	(6)
VII-A.....	99	91	15	19	4
VIII-B.....	107	92	14	24	10
VIII-A.....	127	121	3	2	1
IX-B.....	116	113	4	5	1

TABLE II

Results of Vocabulary Training on Ability to Solve Concrete Problems

Section	Medians, Initial Test		Gain		Net Gain
	Control	Experimental	Control	Experimental	Experimental
(1)	(2)	(3)	(4)	(5)	(6)
VII-A.....	40.6	38.2	—1.2	5.4	6.6
VIII-B.....	42.5	36.5	2	4.5	2.5
VIII-A.....	49.2	47.8	—2.2	1.9	4.1
IX-B.....	46.3	40.6	—9.1	—2	7.1

algebra test was developed by S. L. Pressey, L. C. Pressey, and F. R. Narragon; it was composed of 52 words; they were selected by frequency and importance according to teachers' and college professors' judgments. The concrete-problem test was developed by the writer; it contained 67 problems covering the material in junior high-school mathematics.

Approximately five hundred pupils participated in the experiment; two hundred fifty each in the experimental and con-

[1] The writer wishes to express his obligations to S. L. Pressey of Ohio State University for assistance in this investigation.

trol groups. They were all given the same tests at the beginning of the second semester. The experimental group was given special training in vocabulary; there was special attention given to words as they appeared in the book, and a list of technical words and their definitions was mimeographed and given to each pupil in the experimental groups. Tests on vocabulary were given at various times during the semester to motivate the learning of these technical words. At the end of the semester the same tests were given the pupils.

The control groups in all cases averaged above the experimental groups. This was probably due to the fact that the writer selected the better sections as control and the poorer as experimental groups with the hope of raising the poor sections to a level equal to or better than the good sections.[2]

The testing shows that there was comparatively little advance in knowledge of mathematical vocabulary, under the usual teaching, but definite and consistent gain, both in knowledge of technical vocabulary (*see* Table I) and in ability to solve problems (*see* Table II), as a result of specific training in mathematical vocabulary.

WHEN the low scores made by the seventh grade on the first vocabulary test are considered, it appears that the pupils receive little technical vocabulary training in the first six grades of the elementary schools and make little progress in knowledge of such words. They learn the words that are most common to elementary mathematics, but beyond this little terminology. Considering the gain made by the experimental over the control groups after the vocabulary training, one might draw the conclusion, that if one desires to increase the vocabulary of the pupils it should be by specific training.

Apparently, vocabulary training does help the pupils to understand and work concrete problems, as indicated by these data. Pupils cannot work problems if they cannot read and understand them; they cannot understand the explanation of problems if they do not understand the terminology used. The failure to know a word is evidence of failure to comprehend the idea represented by the word.

[2] The "loss" on the second test of concrete problems was due to the fact that a shortening of the school year (due to the depression) made it necessary to cut the time for this second test seven minutes. The experimental groups in spite of this handicap showed a gain, but the control groups could not compensate for the shortened time.

The experimental groups in general showed greater individual differences on the second test than on the first. The general tendency was for the higher scores to increase considerably with the lower scores increasing less. There was a greater range with a rise in medians. The distribution of scores of the control group increased somewhat on the second testing without the rise in medians common to the experimental groups.

[Vol. XIII, No. 8]

Tri-State Conference on Pupil Personnel

THE first meeting of the Tri-State Conference on Pupil Personnel was held on November 9 and 10 at Detroit, Michigan. The Conference included representatives from the states of Indiana, Michigan, and Ohio.

The general purpose was to make it possible for attendance officers, visiting teachers, school counselors, psychologists, psychiatrists, school nurses, and other pupil-personnel workers to confer with one another about the numerous problems which face them in solving special pupil problems. Too frequently the representatives of one group of pupil-personnel workers do not clearly understand the functions and purposes of other groups. The Conference, in addition to formal speeches, gave opportunity for a great amount of informal discussion, both at the various sessions and after the sessions.

The Executive Committee which made arrangements for this first meeting was composed of Elizabeth Alling, visiting teacher working on the social study of Pittsburgh and Allegheny County; Ralph E. Dugdale, superintendent of schools, Toledo; Samuel W. Fogle, director, child accounting, Cincinnati; Arch O. Heck, professor of education, Ohio State University; A. N. Hennigar, director of attendance, Detroit; Warren K. Layton, assistant director of school counseling, Detroit; Margaret E. Paddock, state director of attendance, Indianapolis; and David J. Wiens, director of attendance, Cleveland.

Three hundred people attended the first session, a luncheon meeting. The total attendance at the Conference approximated four hundred. At the final session on Saturday morning constitution and by-laws for a permanent organization were unanimously adopted. The meeting next year will be at Indianapolis.

EDITORIAL COMMENT

Good Sports

FACTS of broad national significance lie behind the caption of a current editorial in a leading Ohio morning paper entitled "Teachers Good Sports." The editor commented upon the public-spirited decision of the Zanesville, Ohio, teachers to man the schools of that city without pay until the close of the year.

Teachers have exhibited good sportsmanship in thousands of schools during the last few years. Zanesville is not unique. In city systems and in rural schools, teachers have donated their time and effort to the unpaid instruction of children. Less conspicuous but equally unselfish college faculties in many cases have continued to carry on their duties without remuneration or with compensation below the level of subsistence.

They could have gone on strike, but they have not. They could have stayed at home and let the children run the streets, but they did not. They have carried on under the most distressing conditions.

They have done this because they love the cause in which they labor. Cotton workers deal with machines and raw materials; automobile workers manufacture objects of steel; grocery workers are busy with vegetables and fruit. To these workers a strike means merely damage to material products, and materials inspire little enthusiasm because they possess neither life nor the possibilities of growth. Teachers, however, are dealing with children who live and love, who have emotions, minds and ideals, who cannot regain tomorrow what they lose today. So teachers living with the most precious possessions of a nation are solidly convinced that no matter what their own personal inconvenience they must carry on.

This love for children unites the teaching profession firmly with the home. Beyond any other social agency the school is intimately a part of the local community. In times of plenty the communities supported their schools with fairness—not to the complete satisfaction of the profession—but with greater enthusiasm than they provided for any other social agency. Witness the chief cause of the present plight of the public schools

which lies in the heavy load of debt incurred in the construction of buildings now beyond the immediate capacity of communities to pay. Equally now the schools are suffering along with the community. Where communities are prostrate the schools lie with them; where they are in comfortable circumstances the teachers are paid as usual. If they were as far removed from the intimate life of the homes on Main Street as Federal employees are, they might expect to have their salaries raised in 1935 along with these employees to predepression levels. But their tragedies are their strength. They rise and fall with the fortunes of the homes which support them because they belong to the local men and women who believe in education as the national American religion.

While it is gratifying to teachers to receive the earned reputation of good sportsmanship from a fair-minded public, it is equally important to remember that in the hard issues of economic depression the good sport is often overlooked because a thoughtless constituency may accept his services and forget that he has rights to be considered as well as services to render. Many a good sport has died in poverty and neglect.

Consequently the teaching profession has a fundamental social obligation to see that the needs of the children are kept squarely and persistently before the public. This means adequate equipment, textbooks, and supplies, and in particular a level of salaries so reasonable that the best of the youth of the nation will be attracted to the occupation of teaching children. Good sportsmen have a vigorous and tenacious enthusiasm for the cause which they support. The good sportsman is never a mollycoddle; he is a fighter. He could not become good in his line if he did not obdurately press to overcome obstacles to success.

To continue to earn the appellation so deservedly conferred upon them, teachers must work with consistent enthusiasm for the rehabilitation of the school systems of this nation.

W.W.C.

READINGS

RUGG, HAROLD. "Education and the Great Transition," *New Era*, XV (September-October, 1934), pp. 166–71.

We are between two stages of economic and social change. The first stage was characterized by expansion, building, exploitation for private profit, and personal aggrandizement, and demanded action. The second stage will be characterized by consolidation, a régime of abundance, a co-ordinated distribution system, and design and realization in social control.

Two major problems must be solved if a truly great culture is to be developed. These are, first, "the problem of designing a social structure which will produce the economy of abundance which is guaranteed by our resources and our technology"; and second, "the problem of designing a creative and appreciative personal way of life within that structure. The hub of the former is social control; that of the latter is self-cultivation." A vastly different educational procedure must be developed if these problems are to be solved. "Schools of living" with more emphasis on well-rounded personal development and upon social control are recommended as compared with the present "schools of literacy." New concepts of social and economic control must dominate a new education for a new epoch.

DOUGLASS, HARL R. "The Effects of State and National Testing of the Secondary School," *School Review*, XLII (September, 1934), pp. 497–509.

The author makes these pointed criticisms of state-wide testing programs: (1) Examinations from an outside agency tend to cause cramming. (2) There will be an emphasis on less important objectives which can be easily measured. Inadequate attention will be paid to attitudes, interest, ideals, and skills of initiative and independent thinking. (3) The control of the curriculum will be handed over to a test bureau or service. Statements of a number of well-known educational leaders are presented. They show that they are skeptical of the educational value of present state-wide testing methods.

STALNAKER, JOHN M., AND STALNAKER, RUTH C. "Reliable Reading of Essay Tests," *School Review*, XLII (October, 1934), pp. 599-605.

The writers show how the grading of essay tests can be made highly reliable if two procedures are used: first, care to formulate essay-test questions in such a way that a restricted form of answer is required; second, readers must judge papers on the basis of specific, predetermined criteria.

GOULD, GEORGE. "Motives for Entering the Teaching Profession," *Elementary School Journal*, XXXV (October, 1934), pp. 95–102.

Interest in the subject, interest in pupils, and opportunity to be of service to others were the three major motives listed by 161 men and 289 women Seniors in the teacher-training course of the University of Pittsburgh during the years 1932 to 1933. Other motives commonly occurring were the necessity of earning a living immediately and the influence of a high-school teacher. However, the fact that almost 25 per cent of these students would have pre-

pared for other vocations had they been financially able to do so indicates that the necessity of earning a living immediately and the lack of means for training in other fields likely may have been strong influences in the selection of teaching.

REAVIS, WILLIAM C., *et al.* "School Organization," *Review of Educational Research*, IV (October, 1934), pp. 355–444.

This issue of the *Review of Educational Research* revises and brings down to date (July 1, 1934) the issue of the *Review* which appeared in June, 1931, and which was devoted to the same topic. School organization as here conceived deals with the "structure of the school system and its modification in response to both social and administrative needs." Mr. Freeman, chairman of the Editorial Board, characterizes this issue as "a singularly well-balanced review of the subject of administration and organization. It not only indicates where information may be found on the subject, but summarizes the chief facts which have been gathered by the studies referred to."

CARPENTER, W. W., AND CAPPS, A. G. "Uncle Sam and His Children," *School Executives Magazine*, LIV (November, 1934), pp. 70–71.

Thirty-one and two-tenths per cent of the 19,820 public-school pupils located in six Missouri cities had made at least one move from somewhere else to the cities in which they lived at the time that this study was made. Some of these 6,198 children had lived in each of 45 of the 48 states. A map included with the report shows that former residences were concentrated in Missouri and in surrounding states, yet substantial numbers had moved into these Missouri cities from California, Texas, Florida, Indiana, Colorado, and Nebraska.

The authors point out that the problem of migration of children becomes a national as well as a state problem. Because of the migrations a substantial number of pupils who begin their training in one part of the state or section of the country will likely finish their education in another part of the state or another part of the country; hence the citizens of every state should be vitally interested in the educational programs of all states in the country.

In Paper Covers

TRUDEAU, CHAS. F., editor. *Louisiana High-School Standards: Organization and Administration*. Baton Rouge, Louisiana: State Department of Public Instruction, 1933. 190 pp. (Bulletin No. 258)

This bulletin has been issued in an endeavor to clarify and bring up to date recent changes or modifications made by the State Board of Public Instruction with respect to high-school standards in Louisiana. It contains the state program of studies, classification of high schools, requirements for graduation, suggested curriculums, qualifications of principals and teachers, standards for plant and equipment, and requirements for entrance to Louisiana colleges and universities. Appended are the Standards of the Southern Association of Colleges and Secondary Schools.

Worthy of note are the section dealing with the objectives of secondary education, and that portion of the manual covering plant and equipment. In

the former instance the so-called "cardinal principles" are accepted, and these in turn are broken down into numerous, more specific objectives. It is doubtful whether much worth-while thought has been given to the problem. Perhaps of most value are the pages devoted to a detailed presentation of necessary equipment and materials for various laboratories.

L. L. JARVIE

BOYDEN, ARTHUR C. *The History of the Bridgewater Normal School.* Bridgewater, Massachusetts: Bridgewater Normal Alumni Association, 1933. xiii +156 pp.

Almost a century ago Massachusetts established the first three state normal schools in the United States; and the volume here reviewed traces the history of one of those schools from the beginning to the present. The author was for more than a quarter of a century (until 1933) the principal of the school whose story he narrates; and his father who preceded him in that office had served for almost a half-century. Long personal association may help to explain the complete absence of documentation from the book. For a book so produced its modesty and objectivity are extraordinary and highly praiseworthy. It is filled with facts, too many indeed, and the style is undistinguished. The author has the true teacher's interest in the school's graduates, and this in its working-out transforms many of his pages into a miniature *Who's Who.* Whether his periods of American normal-school development can be substantiated from history is doubtful, but we shall not pursue further the graceless task of picking technical flaws or what seem to be flaws.

Many pages of the volume will be of interest to any student of American education: Bridgewater's influence in the West; the history of her curriculum; the account of the nature-study movement and her place in it; her relations to the State—these are only a few examples. The Bridgewater alumni for whom the book was printed will doubtless take renewed devotion to Alma Mater and to the larger task before them and us from this volume.

H. G. GOOD

GOULDING, ROBERT LEE. *The Development of Teacher Training in Florida.* Nashville, Tennessee: George Peabody College for Teachers, 1934. 10 pp. (Abstract of Contribution to Education, No. 129)

This pamphlet is the abstract of a Doctor's thesis on file in the library of George Peabody College for Teachers in which the writer traces the development of the training of white teachers in Florida from enactment of the first school law in 1869 until the present time. No definite information exists concerning the scholastic attainments of the teachers of the state prior to the school year 1894–95, but the certificate provisions of 1869 and 1889 were such that the teachers were not encouraged to advance themselves. With the advent of the Uniform Examination Law, which became effective on January 1, 1894, the emphasis in teacher training for a number of years was almost entirely upon the preparation of teachers for passing the certificate examinations; little emphasis was placed upon teaching them how to teach.

The Graduate Certificate Law and the Summer School Law of 1913 prepared the way for a great step forward in the educational history of Florida. These laws encouraged prospective teachers and teachers in service to take

teacher-training courses in institutions of higher learning. In 1912–13, the certificates held by more than 96 per cent of the teachers in Florida schools represented a scholastic attainment of less than four years of high-school training; in 1931–32, approximately 96 per cent of the teachers in Florida schools were high-school, normal-school, or college graduates, and many of them held Masters' degrees.

NANCY MASON

LIES, EUGENE T. *The New Leisure Challenges the Schools.* Washington: National Recreation Association, 1933. 326 pp.

Whether the steadily increasing amount of leisure time will be a blessing or a curse to the people of this country is a question which must be largely answered by the schools according to the author of this interesting and helpful book. This volume is the result of a thorough survey of what the schools are doing in training for leisure, and in providing leisure-time activities for pupils, non-school youth, and adults. Mr. Lies personally visited thirty-six cities and obtained information by questionnaire from more than four hundred others. This report of his study offers not only a modern philosophy of leisure but also gives practical help in curriculum planning, the stimulation of extra-curricular activities and community relations. It includes a large amount of practical material which should be of value to teachers and everyone interested in this vital problem.

WILLIAM E. ARNOLD

Books to Read

DEWEY, JOHN. *How We Think.* Boston: D. C. Heath and Company, 1933. x+301 pp.

It is now a quarter of a century since *How We Think* first made its appearance. In a short time it took rank as an educational classic, and no rivals have appeared to challenge its pre-eminence. Nevertheless, readers of Dewey will welcome this revision. While the basic point of view and the general approach remain unchanged, the revised edition offers some new material and secures an appreciably greater clarity and enrichment of meaning. The central idea; namely, that "mind" or "intelligence" is not a separate entity, but a name for the function of reconstructing or reintegrating our experiences when maladjustments occur, is maintained throughout and is reinforced by references to the abuses that occur in school practices when the older conception of thinking determines our procedures. Furthermore, as is likewise pointed out, the blind reaction against these abuses results in another set of abuses, which are none the less objectionable because they are committed in the name of progressive education. Security is to be found, not in labels, but in cultivating straight thinking about thinking. As a guide to such thinking this book is in a class by itself.

B. H. BODE

KELLY, W. A. *Educational Psychology.* Milwaukee, Wisconsin: Bruce Publishing Company, 1933. xix+501 pp.

The character of this book is well set forth in the Foreword. It "is intended for use in Catholic colleges and universities. The purpose is to

present a simple exposition of educational theory and practice in the light of the basic and leading principles of Scholastic psychology. The substantial foundation of this book is the principle that man is a compound of body and soul, endowed with free will, responsible for his actions, and destined for an eternal life."

Modern research is not neglected, however, though at times it is subordinated. Thus having shown that the differences between the sexes are not so great as was once believed, the author declares dogmatically that there "are distinctive differences—as all true educators recognize." What these are is not further stated, but "the Church's attitude on coeducation is therefore based on sound educational as well as moral and religious principles" (p. 242). The reviewer also finds certain mental differences between the sexes. These can be stated. So far from supporting the opposition to coeducation, these differences seem to be the strongest reason for it. But the issue with Mr. Kelly cannot be directly joined because he does not trouble to expound the differences and their relation to coeducation. That is, unfortunately, rather typical. On the whole, however, within the self-imposed limits, the book seems capably done.

HORACE B. ENGLISH

ALLEN, RICHARD DAY; STEWART, F. J.; AND SCHLOERB, L. J. *Common Problems in Group Guidance.* New York: Inor Publishing Company, 1933. xix+186 pp. (Inor Group Guidance Series, Vol. I)

ALLEN, RICHARD DAY. *Case Conference Problems in Group Guidance.* New York: Inor Publishing Company, 1933. x+151 pp. (Inor Group Guidance Series, Vol. II)

The authors of *Common Problems in Group Guidance* have begun their attack in the right direction by attempting to create a manual which will aid counselors of youth as they attempt to create worthy philosophies of life. The common problems listed seem to be well selected and really significant. There is a fallacy in this approach which must be noted. Discussion of problems, unless opportunely selected in their sequence, have too little real meaning to youth. Discussion must be related to current activities of the group.

The plan of attack put forth in *Case Conference Problems in Group Guidance* has its values derived from the case-analysis technique. It would seem, however, from a survey of the cases presented that students would think them rather artificial and overdrawn. Why would it not be possible to select cases that avoid the typical Frankie and Johnnie situations. A list of cases drawn from the milieu of students and approached in the spirit of "belief-ful" realism would appear to be more effective. C. A. Beard refers to this approach as a tension or balance between empiricism and humanism.

ARTHUR HENRY MOEHLMAN

FAGERSTROM, WILLIAM HENRY. *Mathematical Facts and Processes Prerequisite to the Study of the Calculus.* New York: Teachers College, Columbia University, 1933. vii+68 pp. (Teachers College, Columbia University, Contributions to Education, No. 572)

The purpose of this study is to ascertain the extent to which secondary-school mathematics is used in the solution of problems of the calculus. A

standard textbook *Elements of the Differential and Integral Calculus* by Granville, Smith, and Longley was used as a source of problems of the calculus. In 1932-33 it was used as a textbook in 366 colleges and universities. From this source 2,811 problems were obtained. Lists of facts, principles, formulas, and processes were derived from a detailed analysis of the solution of the problems. The data in these lists were classified under four major fields of secondary-school mathematics, algebra, geometry, trigonometry, and analytic geometry. Each field was divided into topics, and each topic into subtopics until the degree of classification was reached where an operation was classified as "multiplying a monomial and a polynomial." The frequency with which the 26,576 facts and operations (276 different ones) were found in the major fields, topics, and subtopics is given in tables.

The results of this analysis were compared with the requirements in secondary-school mathematics in the syllabus of the College Entrance Board to find out how much of the subject-matter of such mathematics required in the syllabus was used in the solution of the calculus problems. A chapter of the book is devoted to these comparisons. The study should be of interest to teachers and students of the calculus and to those who plan to develop remedial exercises in teaching the calculus.

F. P. FRUTCHEY

MURSELL, JAMES L. *Human Values in Music Education.* Boston: Silver, Burdett and Company, 1934. 388 pp.

Human Values in Music Education by James Mursell is the second major contribution made by this author as an associate to the music-education field. The teaching of music has been a haphazard undertaking in America, and the need for clearly defined objectives and procedures based upon psychology is apparent to the casual observer.

The author seeks to place squarely before the reader what music means as an individual experience, as a social opportunity and a moral force. It does not carry one away to realms of imagination but backs up the place that music should occupy in one's life by bare facts.

Too long have we thought of music as for the select few and not as a satisfier of human needs in a democracy. This book clearly states what teachers should aim to allow music to do for their pupils. It emphasizes that music is not a technical mind trainer but shows how musicianship is a human quality much to be desired by the laity.

It shows what part the teacher must play in bringing human musical values to students and emphasizes the place of interest in music education. There are no extreme points of view taken in its various chapters, but the book offers interesting suggestions to all thinkers whether they are musical or not.

JOSEPH A. LEEDER

BRESLICH, ERNST R. *The Administration of Mathematics in the Secondary Schools.* Chicago: University of Chicago Press, 1933. vii+407 pp.

There is perhaps no more potent influence on the teaching of mathematics than that which has its origin in the administrative head of the department. If this influence is to be wholesome and sound, the administrator must be keenly aware of the problems which confront him and thoroughly ac-

quainted with the best possible techniques for solving them. In this volume, which is the last of a three-volume series devoted to a consideration of the problems related to the teaching of secondary-school mathematics, Mr. Breslich discusses these problems fully and sympathetically.

There are the problems of supervision such as the holding of departmental conferences, the visiting and training of teachers, the determination of objectives, the formulation of a testing program, and the provision for individual differences—all of which are discussed with improvement of teaching as the focal point in their solution. Then there is the problem of building a curriculum suitable to a changing social order, and in discussing this the author makes a strong case for a unified mathematics closely correlated with the natural sciences. Numerous illustrations are given from his own rich experience in the handling of these problems. The bibliographies are unusually complete and the book will be most helpful to anyone interested in improving mathematics.

P. W. FAWCETT

BUREAU INTERNATIONAL D'EDUCATION. *Annuaire International de l'Éducation et de L'Enseignement.* Genève, Switzerland: Bureau International d'Education, 1933. 345 pp.

In the *Annuaire International de l'Éducation et de l'Enseignement* of 1933, the Bureau of International Education has presented a rich document of the educational movement in thirty-five countries of the world, and has made a big step forward in international co-operation in the field of education.

The *Annuaire* presents for the first time a panoramic view of educational progress: reforms, legislative and otherwise; method; and administrative and pedagogical problems of the past year in all levels of education have been skillfully summarized.

Under each country treated is found an enumeration of the numbers and kinds of schools, pupils, and teachers of all levels of education, as well as other valuable statistics, such as population, budgets, and amount of compulsory education. It is interesting to note how and to what extent such countries as Germany and Austria have found it necessary, because of economic conditions, to alter educational advantages.

Such problems as the "self-government" experiment of Poland and the control over teacher training exercised in British Columbia will be interesting to follow through in the ensuing numbers of the *Annuaire.*

LA VELLE ROSSELOT

WOELFEL, NORMAN. *Molders of the American Mind: A Critical Review of the Social Attitudes of Seventeen Leaders in American Education.* New York: Columbia University Press, 1933. xii+304 pp.

This book in less than 240 pages of actual text essays first, "to build a picture out of factors which are obvious to anyone who cares to look for them, of what seems to be happening in America today" (p. 3). These include such factors as the decline of the Christian tradition and of the business régime, meaning capitalism. To some, capitalism, at least, seems pretty robust even now. But this is an aside. We have also a consideration of the "beginnings of cultural distinction and independence in America," of the "resources for

future social reconstruction," and some other matters. Second, there is an analysis and "interpretive criticism" of the "viewpoints" of seventeen chosen leaders of educational thought, or more concretely, of seventeen professors of education or, as the author calls them, molders of the American mind. Some of the professors will have difficulty in recognizing their thought as it is analyzed here. The whole procedure is so summary and compendious that one wonders whether it can have any scientific value. Section Four (pp. 227–44) is the positive part of this thesis and is called "Suggestive Strategic Considerations for American Educators." The first consideration advanced is simply, "the maturing of personal viewpoint by reading and discussion, by scrutiny of contemporary civilization and by self-examination." The fourth consideration puts it this way: "Immersion into the budding native culture by steady enlargement and cultivation of professional and non-professional cultural opportunities available in the social environment." That is simply "pedaguese."

We have spent so much space upon the form of this dissertation that we have little left for the content. Indeed, it would take a great deal of space, far more than Mr. Woelfel has used in his original presentation, to discuss all the problems here raised. Mr. Woelfel's solution would seem to be a state socialism controlled by the intellectuals, or possibly syndicalism, or perhaps he implies that all people are potential intellectuals and should become autonomous. This last may be not state socialism but anarchy. But until our author clarifies his thought, makes up his mind, and refines his language we may be absolved from further consideration of his work.

H. G. Good

Fawcett, Charles B. *Political Geography of the British Empire.* Boston: Ginn and Company, 1933. xiii+409 pp.

This book is not merely a study in political geography but an appraisal of the British Empire as at present constituted. The Empire's future is also forecast, however, with some caution. "The most important of all the problems of the political and economic geography of Great Britain arises from her dependence on reserve lands for the supply of a large part of her foodstuffs and some essential raw materials for her industries." While this conclusion is not at all new, yet it carries weight because made by one of Great Britain's foremost geographers. Numerous other striking observations are printed by the author, which stimulate thought and encourage controversy. A dominant note throughout the work relates to the many points of contact, friction points, of the Empire with other nations in a time when rapid communication prevails. Thus the internal and external policies of the mother country are profoundly affected and the existence of the Empire is threatened.

Each part of the Empire is discussed in detail after consideration is given to the political organization as a whole. A final chapter returns to the subject of world relations.

A number of black and white maps including unusual "skew" maps effectively help to illuminate the text. The author is to be congratulated upon recognizing the importance of meridians and parallels in maps, elements all too often omitted by British geographers. A brief statistical appendix and an index complete this valuable contribution to the literature interpreting the British Empire.

Eugene Van Cleef

BROWN, MARION. *Leadership among High School Pupils.* New York: Teachers College, Columbia University, 1933. viii+166 pp. (Teachers College, Columbia University, Contributions to Education, No. 559)

This study utilizes comparisons between three levels of leadership. These levels were based on size and importance of the organization led and the effectiveness of the leadership. Two hundred fifty-nine pupil leaders, about equally divided as to sex, from one university high school were selected for study. Characteristics, participation in extra-class activities, channels through which leadership was acquired, and the pupils' opinions as to the advantages and disadvantages of leadership were the main problems attacked in the five-semester investigation. Other works in this field are reviewed and quoted when pertinent to the question at hand.

VIVIAN WEEDON

PANNELL, HENRY CLIFTON. *The Preparation and Work of Alabama High School Teachers.* New York: Teachers College, Columbia University, 1933. vi+118 pp. (Teachers College, Columbia University, Contributions to Education, No. 551)

This analysis of the high-school teaching staff in Alabama, similar to that made in several other states, covers the preparation, certification, experience, tenure, salaries, subject combinations, and relation of subjects taught to academic preparation of 2,018 high-school teachers. In addition, Mr. Pannell reports an interesting study of the comparative success of teachers teaching only their major subjects and those teaching entirely outside of their major or minor subjects of preparation.

Ratings of a considerable number of teachers by local principals and by state supervisors were found to be higher for those teaching their major subject than for those teaching no classes in their subjects of major or minor preparations. Coefficients of correlation were computed showing relationships existing between specialization and teaching effectiveness. When specialization was defined as a major in the field and all other teachers were considered as nonspecialized, the correlations were $+.42 \pm .08$ as based on the ratings of high-school principals and $+.57 \pm .08$ on the basis of ratings of supervisors. When subject specialization was defined as a major or minor in the subject, the correlations obtained between specialists and nonspecialists were $+.33 \pm .09$ on the basis of principals' ratings and $+.49 \pm .09$ on the basis of supervisors' ratings. The persons who rated these teachers did not rate them with regard to whether or not they were teaching in their major or minor fields.

According to Mr. Pannell, more than 40 per cent of the teachers in 1928–29 were new to their positions; rural teachers received lower salaries than did city teachers; experience was a bigger factor than training in the matter of salaries; twenty-five per cent taught no classes in their major or minor subjects; and city schools were no better than rural schools in the matter of employing teachers majoring or minoring in the subjects which they were to teach.

EARL W. ANDERSON

NEW TESTS

An expected result of teaching in the elementary school is that pupils be able to locate information. One device which aids in locating information is the index. At times we wish to locate information about a general topic, "petroleum"; at other times we want to locate more specific information about petroleum, as "the production and distribution of gasoline"; then again we want to locate still more specific information, "How is gasoline made by the 'cracking' process?" The index is a useful method by which we can locate general and more specific information.

The dictionary is another source of information. We usually consult a dictionary for the meaning of words, for the spelling of words, and for aid in pronouncing words. Before we can do these things, we must first find the page and the word on the page.

Philip A. Boyer and Harriet Bartelmess, of the Division of Educational Research of the Philadelphia public schools, have developed a test for collecting evidence about the ability of children to use an index and a dictionary. The test on the use of the index consists of three parts, the finding of general, specific, and still more specific information. One full page of two columns is devoted to a partial duplication of an index containing words beginning with letters from *A* to *Z* and the numbers of pages on which those references may be found. Part 1 consists of ten words as "cereals," "watchmaking," "explosives," with a blank line on which the children write the number of the page or pages given after the topic in the index. Some words in the list are not given in the index; these the children are to indicate by putting an *x* in the blank line. Part 2 is similar except the list contains ten more specific topics as "cleanliness of hands," "discovery of South Pole," "cries of wild animals." The children react in the same manner as in Part 1. Part 3 is also similar except the list contains ten still more specific topics as, What is the first-aid treatment for a bad burn? Again the children react in the same manner as in Part 1, by finding the specific topic in the index and the page or pages to which the topic refers and writing the number on the blank line.

Test II is designed to get at the ability to use the dictionary. It consists of three parts. In Part 1 the children are expected to locate words by finding the page on which the word may be found. A list of twelve words to be located is given. Below them are sixteen numbered pages, representing a sample of sixteen dictionary pages consisting of two columns each. At the top and bottom of each column is a word. Between the top and bottom words of each column are the initial letters of words which supposedly appear in a complete dictionary page. The child begins with the first word "ivy," finds the page on which the word would appear, and places the number of the page on the blank line after the word.

Part 2 consists of ten sentences, each containing one italicized and underscored word. At the right of each sentence are three meanings of the word. For example, one sentence is "The children were playing in the *court*." The meanings given are, "a king and his household," "a small place surrounded by houses," "a judge or judges trying a case." The child is to select the meaning which is the one for the word "court" as it is used in the sentence.

Part 3 is the use of key words as an aid in pronouncing words. A list of five words is given. After each word, the word is syllabified, accented, and spelled as it may be pronounced, as for example, "cement" (sē mĕnt). Nine key words are given with certain vowels marked to show how these vowels are pronounced. By looking at the word to be pronounced and the key words, the child selects the key words which aid in pronouncing the word and writes the numbers of those key words on the blank line after the word to be pronounced. For example, let us consider the word, "cement" (sē mĕnt). Key words "eve" and "end" help in pronouncing cement. Hence their numbers, 6 and 7, are written on the blank line after the word, "cement."

This description should help to make clear the type of behavior expected of the children in taking the test. Although so far as I know this paper and pencil test has not been checked against the behavior involved in actually using an index or dictionary, the two are sufficiently alike that it is reasonable to assume that both methods give practically the same results.

The directions to the children are clear and the samples at the beginning of each part help the children to understand

what they are expected to do. No data are given concerning the reliability of the tests or parts of the tests for different groups of students. Median scores for fifth- and sixth-grade pupils in the city as a whole and in separate school districts of Philadelphia are given in Bulletin 339 of the Division of Educational Research. The test will be interesting to teachers who are concerned about the ability of their students to locate information by using an index and a dictionary.

F. P. FRUTCHEY

Unpublished Studies in Elementary-School English

A summarized bibliography of unpublished studies in elementary-school English is being compiled by a committee of the Conference on Research in Elementary School English. The hope is to make this record as complete as possible. Reports of Doctors' or Masters' theses which are filed in university libraries are accessible, but seminar reports and term papers are beyond the reach of the committee unless the aid of English teachers and English students can be enlisted in the search. Any reader of the EDUCATIONAL RESEARCH BULLETIN who knows of an unpublished research study in elementary-school English who will send the name of the study with the name and address of the author will add at least one more reference to the list.

Any reader who himself has carried on research in elementary-school English will assist the committee if he will send a summary of his study comprising the following items:

Author's name and title of the study
Status of the research—term paper, seminar report, Master's thesis, Doctor's thesis, or independent study
Summary:
1. Problem stated
2. Auspices under which study was carried on
3. Description of conditions of the study—number of children concerned, school grade, age of pupil, etc.
4. Procedure followed or methods used
5. Findings and conclusions
6. Implications of the study

Any information regarding such unpublished studies should be sent to J. MacLatchy, Bureau of Educational Research, Ohio State University.